

# **TABLE OF CONTENTS**

## **AVENAL ENERGY AFC**

	<u>PAGE NO.</u>
LIST OF TABLES	ii
6.0 ENVIRONMENTAL INFORMATION	6.1-1
6.1 Introduction	6.1-1
6.1.1 Description of Existing Conditions	6.1-2
6.1.2 Evaluation of Environmental Impacts	6.1-2
6.1.3 Project Design Features and/or Mitigation Measures	6.1-3
6.1.4 Cumulative Projects	6.1-4
6.1.5 Summary	6.1-6
6.1.6 References	6.1-12

**TABLE OF CONTENTS**  
**AVENAL ENERGY AFC**  
**(Continued)**

**LIST OF TABLES**

<u>TABLE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
6.1-1	Projects for Cumulative Impact Analyses	6.1-5

**LIST OF FIGURES**

<u>FIGURE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
6.1-1	Location of Projects With Potential for Cumulative Impacts	6.1-7
6.1-2	Location of Cumulative Project Near Avenal Energy Site	6.1-9
6.1-3	Project Schedules for Cumulative Impact Analyses	6.1-10
6.1-4	Proposed City Water Turnout	6.1-11

**LIST OF ACRONYMS**

<u>CHAPTER NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
8.0	Avenal Acronyms	8-1

## **6.0 ENVIRONMENTAL INFORMATION**

### **6.1 INTRODUCTION**

This chapter presents an evaluation of the potential impacts of the Project for 17 identified environmental resource areas based on state laws that require consideration of a wide range of potential environmental impacts from a proposed project (see the Warren-Alquist Act, PRC Section 25500 et seq., Commission requirements, PRC Section 25519, and CEQA requirements, PRC Section 21080 et seq.).

For each resource area that follows, the analysis begins with a description of the existing environment and is followed by an evaluation of potential environmental consequences associated with the Project. Project design features and/or mitigation measures to reduce or avoid significant impacts are provided, as appropriate. A cumulative impacts analysis then considers other activities in the area which, when considered together with the Project, could potentially compound or increase environmental impacts. Supporting information to confirm compliance with applicable LORS is included in the specific environmental resource sections.

The analyses presented in this chapter are based on the following: (1) details of the Project as presented in Chapter 2.0 - Project Description; (2) consideration of Commission regulations (Rules of Practice and Procedure & Power Plant Site Certification Regulations, CCR Title 20, Chapters 1, 2, 5, 6 and 7); and (3) consideration of input from Commission staff and various responsible and reviewing agencies. The analyses comply with Commission requirements for an AFC. Additionally, information in this chapter supports the various approvals and permitting requirements discussed herein.

The resource areas analyzed in this chapter are as follows:

- Air Quality (6.2)
- Geologic Hazards and Resources (6.3)
- Agriculture and Soils (6.4)
- Water Resources (6.5)
- Biological Resources (6.6)
- Cultural Resources (6.7)
- Paleontologic Resources (6.8)
- Land Use (6.9)
- Socioeconomics (6.10)
- Traffic and Transportation (6.11)
- Noise Control (6.12)
- Visual Resources (6.13)
- Waste Management (6.14)
- Hazardous Materials Handling (6.15)

- Public Health (6.16)
- Worker Safety (6.17)
- Transmission Systems Safety and Nuisance (6.18)

#### 6.1.1 DESCRIPTION OF EXISTING CONDITIONS

The existing environment for each resource area is presented in this chapter to establish baseline conditions for consideration of potential Project-related environmental impacts. Both local and regional conditions are described, based on the resources and the area of reasonable potential Project impact, as well as Commission and CEQA requirements. Each description of existing conditions is intended to allow the reader to understand baseline conditions relevant to the nature and extent of potential impacts of the Project.

#### 6.1.2 EVALUATION OF ENVIRONMENTAL IMPACTS

The impact evaluations in this chapter address foreseeable positive and negative environmental effects that could occur as a result of Project construction and operation. The analyses are formulated on the basis of planned Project design and operations, available information from secondary sources, and site and regional field investigations. Projections of potential impacts are conservative, in order to consider maximum likely impact scenarios.

For purposes of this AFC, an environmental impact is defined as a beneficial or adverse change in the status of physical conditions as a result of Project construction or operations. Impacts can be direct and occur within the same time frame and location as the Project, or indirect, occurring later in time, farther removed in distance, and/or as a result of a direct impact. The duration of the impact can be short-term (primarily construction impacts) or long-term (life-of-Project). Anticipated impacts are assessed quantitatively and/or qualitatively, as appropriate.

The significance of anticipated impacts is assessed based upon criteria established for each environmental resource area. Significance criteria were determined based on CEQA Guidelines, Appendix G, Environmental Checklist Form, amended December 1999, and on performance standards or thresholds used in the past by responsible agencies for projects in their jurisdictions.

Considerations of significance are based on potential changes to the existing environment and a determination of what may constitute a substantial detrimental effect. They include:

- Resource sensitivity, or the probable response of a particular resource to Project-related activities.
- Resource quality, or the present condition of the resource potentially affected.
- Resource quantity, or the amount of the resource potentially affected.
- Duration of impact, or period of time, over which the resource would be affected, stated as short-term (up to a few years) or long-term (consistent with the operational life of the Project or beyond).

#### 6.1.3 PROJECT DESIGN FEATURES AND/OR MITIGATION MEASURES

As part of the Project, various measures to reduce potential environmental impacts will be implemented through Project design. In this way, Duke Avenal has identified and resolved potential environmental impacts in advance, in order to develop and maintain a Project that minimizes impacts to the environment. Measures to reduce environmental impacts are also included based on applicable LORS. Planning and design efforts for the Project will incorporate provisions for compliance with these LORS.

In addition to design/operational plans and applicable LORS-derived measures incorporated into the Project, mitigation measures are presented in this AFC to reduce the extent of potential significant environmental impacts identified in the environmental resource area analyses.

Methods available to mitigate potential environmental impacts generally include:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of an action.
- Rectifying the impact by repairing, rehabilitating or reclaiming the impacted environment.
- Reducing or eliminating the impact over time by preservation and maintenance.
- Compensating for the impact by replacing or providing substitute resources or environments.

The feasibility and effectiveness of Project design features and/or mitigation measures have been considered in developing the measures included in this AFC. If a particular measure has been incorporated into Project design/operational plans or is provided based on applicable LORS, it is considered integral to the Project rather than a mitigation measure.

#### 6.1.4 CUMULATIVE PROJECTS

The Commission's regulations CCR Title 20, Division 2, Appendix B [G][1]) (see also CEQA Guidelines §§15130 and 15065) require identification of other past, current or probable projects in the area (both public and private) that, when considered together with the Project, could result in cumulative impacts in the region. Cumulative impacts could occur to the extent that impacts related to the Project combine with impacts from these other projects and, together, have a greater impact than when considered separately.

The Site is located in an agricultural region of the western San Joaquin Valley, far from regional population centers and pressures of urbanization. As a result, there are few other projects in the area that could have cumulative impacts with the Project. To identify other planned or ongoing development projects, staff from local and regional government were consulted. In addition, the Commission's records on recent AFC filings were reviewed to determine if there have been recent filings for other new power plants that might have the potential for cumulative impacts related to the construction work force. The projects that were identified through this process that might result in cumulative impacts are listed in Table 6.1-1. The location of these projects is provided in Figures 6.1-1 and 6.1-2. An estimated schedule for each project is provided in Figure 6.1-3.

Table 6.1-1 shows the environmental resource areas where the Project may have a cumulative impact with the other identified projects. In general, the potential for cumulative impacts is limited because projects that could have cumulative impacts are either small or located relatively far away. Potential cumulative impacts are analyzed and described in the environmental resource Sections 6.2 through 6.18 of this chapter.

The following paragraphs describe other projects considered for potential cumulative impacts. The projects in this section were identified by consultation with the City of Avenal, Kings County, nearby cities and counties, and other government agencies.

**City of Avenal Water Turnout Relocation** - The City of Avenal operates an existing water turnout from the San Luis Canal that is located near the northeast corner of the Site. The City is planning to relocate the turnout approximately 600 feet north, to the upgradient side of the canal lock where water is less turbid (see Figure 6.1-4). The new turnout will be sized for a maximum

**TABLE 6.1-1**  
**PROJECTS FOR CUMULATIVE IMPACT ANALYSES**

POTENTIAL DEVELOPMENTS <sup>(1)</sup>	ENVIRONMENTAL RESOURCE AREA																
	Air Quality	Geologic Hazards and Resources	Agriculture and Soils	Water Resources	Biological Resources	Cultural Resources	Paleontological Resources	Land Use	Socioeconomics	Traffic and Transportation	Noise	Visual Resources	Waste Management	Hazardous Materials Handling	Public Health	Worker Safety	Transmission Systems Safety and Nuisance
AVENAL ENERGY (Addressed in this AFC)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PROJECTS WITH POTENTIAL FOR CUMULATIVE IMPACTS																	
1. City of Avenal Water Turnout Relocation	○	○	●	●	●	○	○	●	●	●	●	○	○	○	○	○	○
2. Coalinga Mental Health Facility	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○
3. Hanford Hospital	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○
4. City of Mendota Prison	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○

31161/Rpts/AFC(text)/TbIs&Figs/Sec 6 (9/25/01/rm)

LEGEND: ● = Potential Cumulative Impacts.

○ = No Potential Cumulative Impacts when considered with the Project.

<sup>(1)</sup> See Figures 6.1-1 and 6.1-2 for location of offsite development projects that correspond to the numbers on this table.

flow of 15,000 gpm, which includes up to 6,500 gpm that the City will make available to the Project. The water turnout relocation is currently being designed and permitted by the City. Construction is expected to begin in early 2003 and last 8 to 12 months. City engineers expect this to be a relatively small construction project with a maximum daily construction work force between 6 and 10 workers (Skaggs, 2001).

*Coalinga Mental Health Facility* - This facility will be constructed and operated next to an existing detention facility in the City of Coalinga. Construction is expected to begin in Fall 2001 and be completed in 2004.

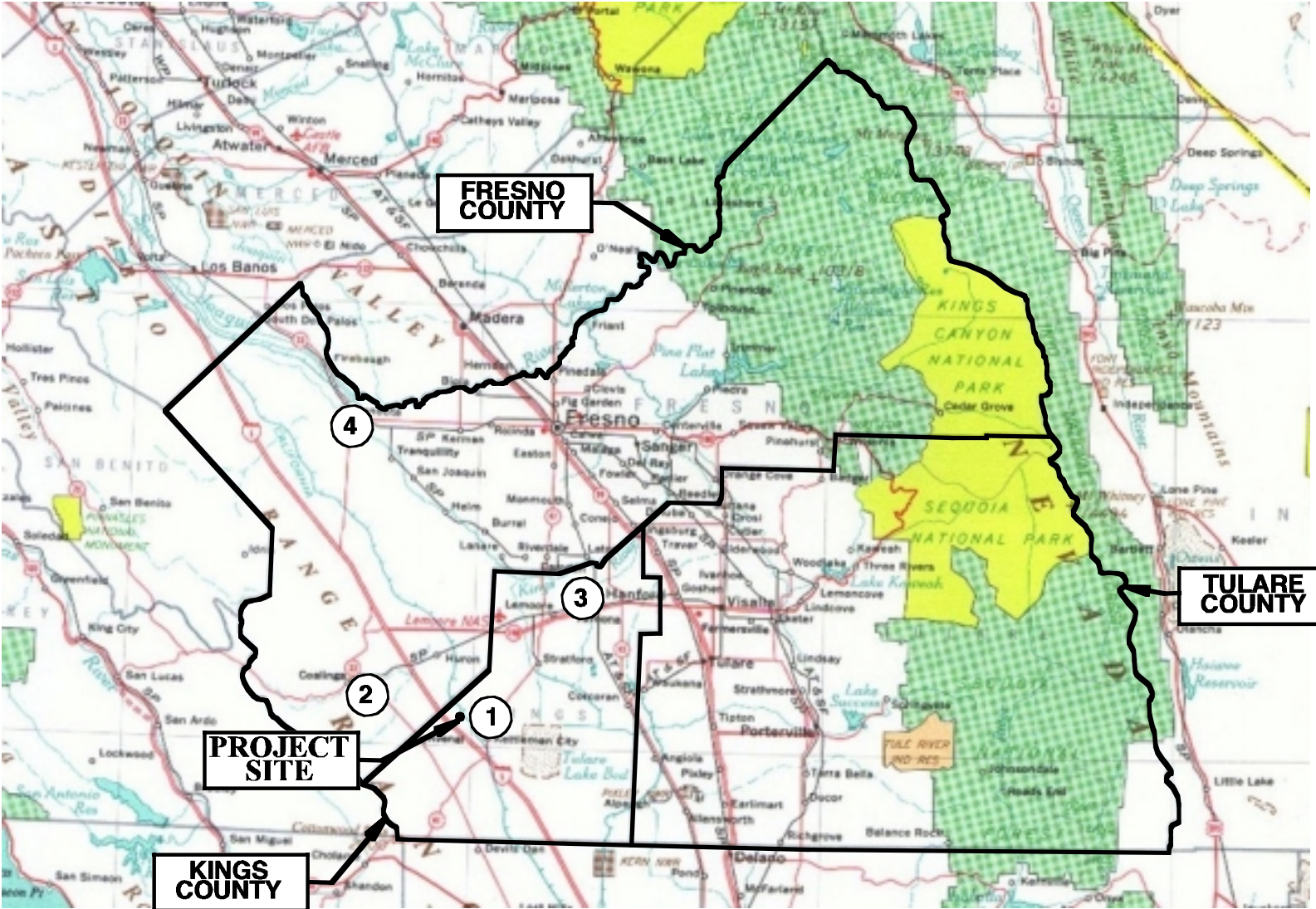
*Hanford Hospital* - This project consists of a new hospital to be constructed and operated in the town of Hanford, approximately 30 miles northeast of the Site. Construction is expected to begin in 3 to 5 years. This project is in the preliminary stages of planning. Details of this project have not been developed.

*City of Mendota Prison* – This project will consist of construction and operation of a 1,000-bed maximum security prison, plus a 500-bed minimum security facility, to be located in or near the City of Mendota, approximately 50 miles north of the Site. The location for this facility is currently being selected. Construction may begin within 2 years.

#### 6.1.5 SUMMARY

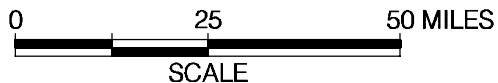
The analyses in the following sections of this chapter (Sections 6.2 through 6.18) present detailed evaluations of environmental impacts associated with the Project and with identified cumulative projects. No significant Project impacts were identified for any environmental resource area that could not be reduced to below a level of significance by Project design features. Similarly, no significant cumulative impacts were identified after evaluation of Project impacts with the cumulative projects for the environmental resource areas. Therefore, mitigation measures are not required for cumulative impacts. Based on the evaluations contained in each environmental resource area analysis in following sections of this chapter, it is concluded that overall environmental impacts from the Project are less than significant.





**LEGEND**

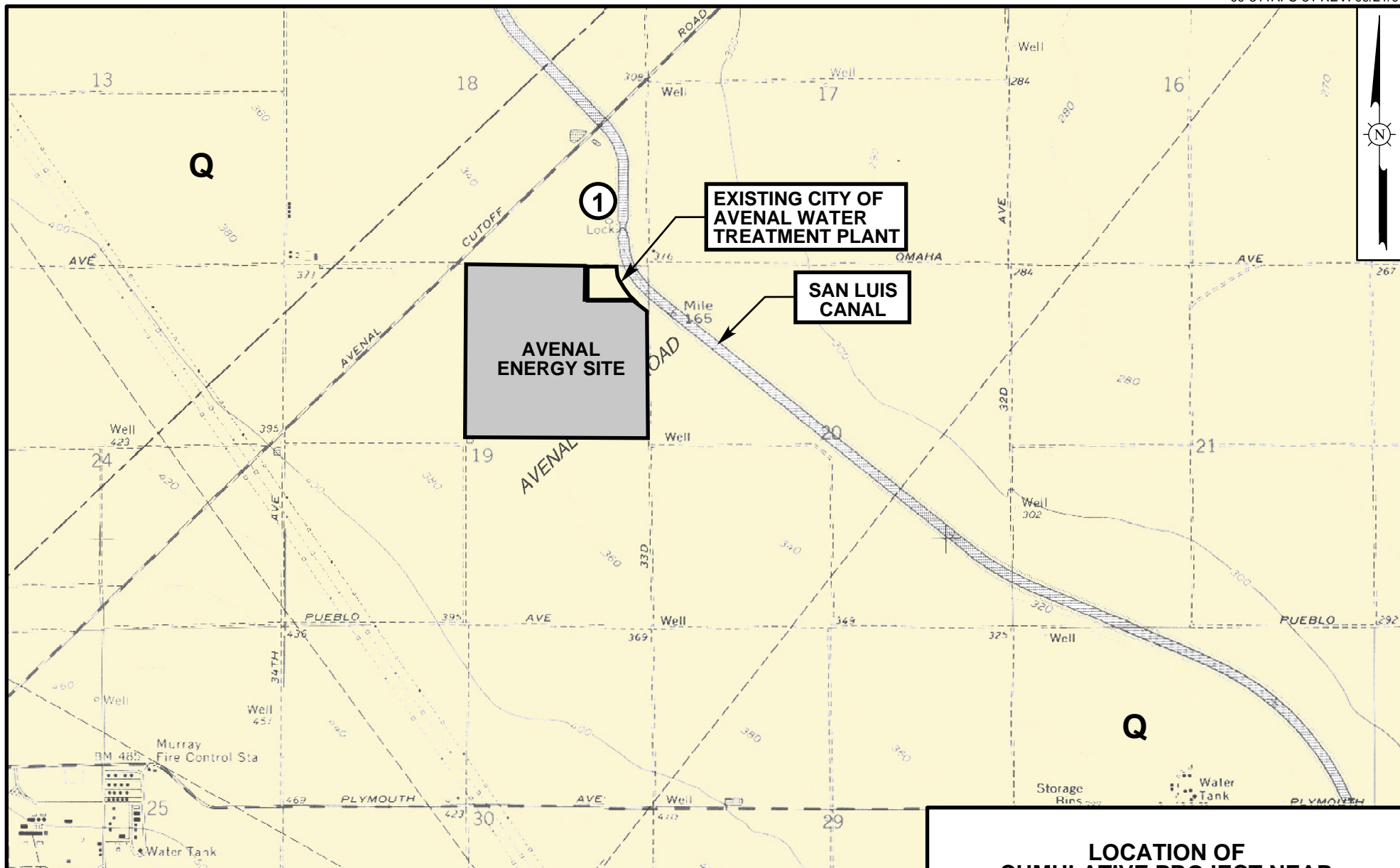
- ① LOCATION OF PROJECT  
(NUMBER CORRESPONDS  
TO TABLE 6.1-1.)



**LOCATION OF PROJECTS WITH  
POTENTIAL FOR CUMULATIVE IMPACTS**

**DUKE ENERGY AVENAL, LLC**  
**AVENAL ENERGY** **FIGURE 6.1-1**

REFERENCE: USGS NATIONAL ATLAS SOUTHERN CALIFORNIA MAP, 1973.

**LEGEND**

① LOCATION OF PROJECT.  
(NUMBER CORRESPONDS TO TABLE 6.1-1.)

Q QUATERNARY ALLUVIUM

REFERENCE: U.S.G.S 7.5 MINUTE TOPOGRAPHIC SERIES MAP  
OF LA CIMA, CALIFORNIA, DATED 1978.

0 2,000 4,000 FEET  
SCALE

### LOCATION OF CUMULATIVE PROJECT NEAR AVENAL ENERGY SITE

DUKE ENERGY AVENAL, LLC



AVENAL ENERGY

FIGURE 6.1-2

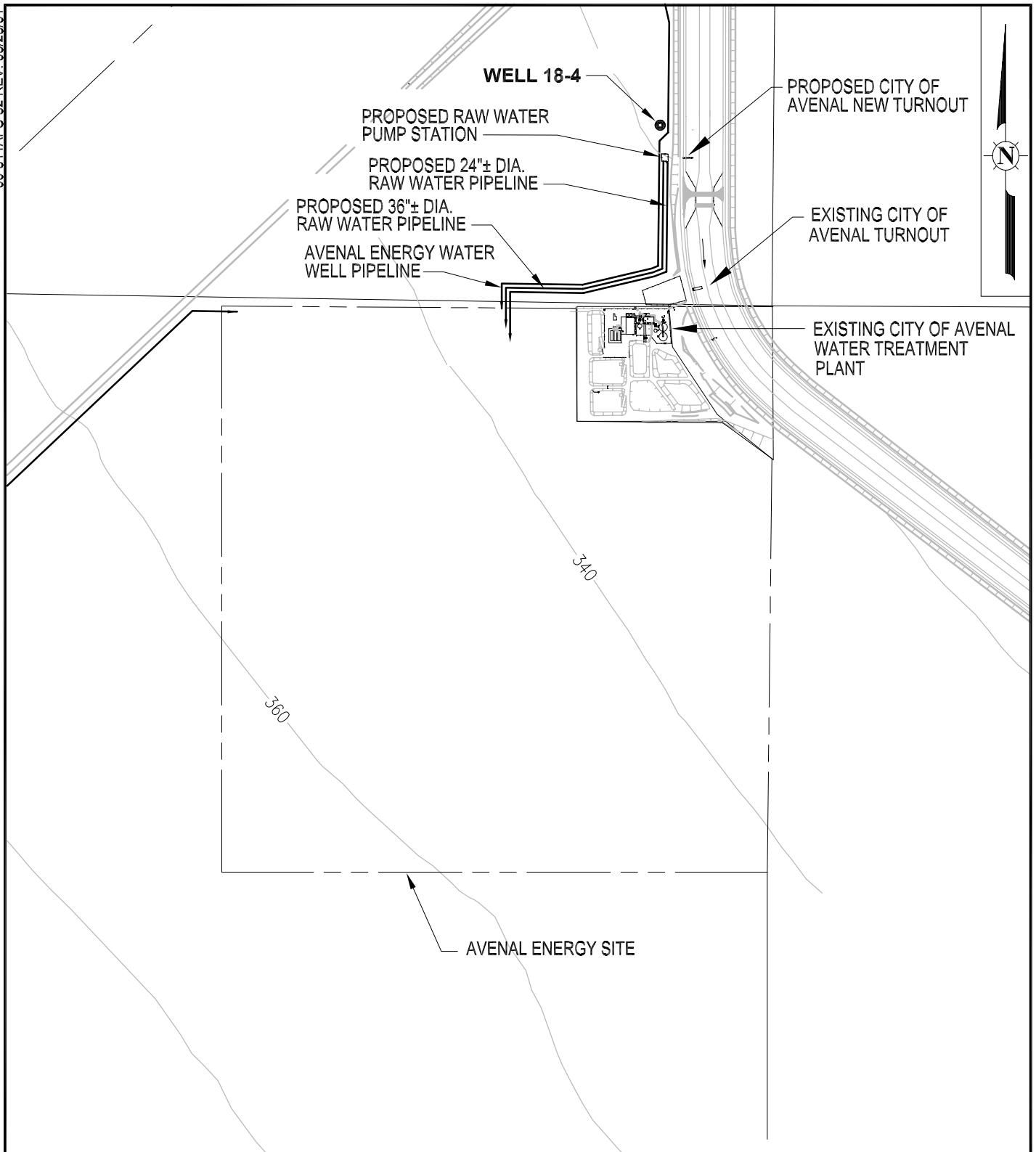
**FIGURE 6.1-3**  
**PROJECT SCHEDULES**  
**FOR CUMULATIVE IMPACT ANALYSES**

POTENTIAL DEVELOPMENTS <sup>(1)</sup>	EXPECTED SCHEDULE						
	2001	2002	2003	2004	2005	2006	2007
AVENAL ENERGY (Addressed in this AFC)			P				
<b>PROJECTS WITH POTENTIAL FOR CUMULATIVE IMPACTS</b>							
1. City of Avenal Water Turnout Relocation							
2. Coalinga Mental Health Facility							
3. Hanford Hospital				(2)			
4. City of Mendota Prison			(3)				

31161/Rpts/AFC/Tbls&amp;Figs (10/4/01/mc)

LEGEND:  = Expected Construction Period.  
 = Expected Operations.  
P = Peak of Project Construction Activity

- (1) See Figures 6.1-1 and 6.1-2 for location of offsite development projects that correspond to the numbers on this schedule.  
(2) This project is in the preliminary planning stage. Construction is expected to begin within 3 to 5 years.  
(3) This project is in the site selection stage. Construction is not expected to begin for at least 2 years.



REFERENCE: SUMMERS ENGINEERING, INC.  
LOCATION MAP, WATER SUPPLY AND  
TREATMENT FACILITIES WITH OPTION B,  
PRELIMINARY, MARCH 7, 2001

0 1,500 3,000 FEET  
SCALE

## PROPOSED CITY WATER TURNOUT

DUKE ENERGY AVENAL, LLC  
AVENAL ENERGY FIGURE 6.1-4

#### 6.1.6 REFERENCES

California Integrated Waste Management Board (CIWMB). Permitting and Enforcement Committee Meeting Staff Report: Consideration of Concurrence in the Issuance of a New Solid Waste Facility Permit for the Kochergen Properties Grease Trap Disposal Site, Fresno County. May 10, 1996.

CIWMB. Standardized Composting Permit, Kochergen Farms Composting - 16-AA-0022. April 3, 2000.

City of Coalinga, James Nearchos, City Planner. Personal communication with Tom Skinner. June 2001.

City of Mendota. Gerald Giersch, City Engineer. Personal communication with Tom Skinner. June 2001.

County of Fresno, Community Health Department. Solid Waste Facility Permit 10-AA-0174, Kochergen Properties Grease Trap Disposal Site. April 26, 1996.

Donabed, J. M. Letter to County of Kings Department of Public Health re: Kochergen Farms Composting Facility. December 11, 2000.

Fresno County Economic Development Corporation. Allison Larsen, Vice President of Client Services. Personal communication with Tom Skinner. June 2001.

Fresno County Development Services Department. John Popp, Analyst. Personal communication with Tom Skinner. June 2001.

Kochergen Farms. Project Description for Kochergen Farms Composting Site. May 5, 1998.

Regional Water Quality Control Board (RWQCB). Report Review, Report of Waste Discharge - Addendum No. 2, Kochergen Farms Composting Facility (Discharger), Kings County. February 16, 1999.

Skaggs, B. Summers Engineering. Personal communication with Joe Stenger. July 3, 2001.

Tulare County Economic Development Commission. Karin Ford, Director of Client Services. Personal Communication with Tom Skinner. June 2001.